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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/166,343	10/05/1998	C STUART JOHNSON	5508-51049/M	9027

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07/16/2002

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EXAMINER

ABELSON, RONALD B

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/166,343

Applicant(s)

JOHNSON ET AL.

Examiner

Ronald Abelson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-14, and 16-21 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Drawings

1. The drawings are objected to because the Switch Fabric of Figure 1 is not numbered. It must be numbered "24" to agree with the specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 10-14, 16, and 19-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakrishnan (US 6,049,546).

Regarding claim 13, Ramakrishnan teaches a method and apparatus for a switching device (fig. 3), for communicating data packets (col. 7 lines 21- 27) from sending ports (fig. 3 Input Port 1..N) to destination ports (fig. 3 Output Port 1..N).

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The system contains a first stage queue storing packet-related data from a sending port (fig. 3 box 110), a second stage queue associated with each of a set of destination ports storing the packet-related data from the first stage queue (fig. 3 box 130), and a switch fabric/controller coupled to the second stage queue, the switch fabric using the packet-related data in the second queue for transmitting the data packet to a destination port (fig. 3 box 140).

Although Ramakrishnan specifically teaches a controller (fig. 3 box 140), this is done since each controller is sending the data to only one port and the controller's function is to determine the time sequence that each queue (fig. 3 box 130) will send the data. It would be obvious to one skilled in the art that if multiple ports could be selected instead of one port then the controller (fig. 3 box 140) would be replaced with a switch.

Regarding claims 1 and 21, in addition to the limitations listed in claim 13, determining from the packet-related data stored in the first stage queue, which destination ports are to receive the packets (fig. 3 box 120, col. 7 lines 49 - 65).

Regarding claim 2, the packet-related data is a pointer to memory and a list of destination ports (col. 8 lines 47 - 63).

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Regarding claim 3, sending the packet-related data from the sending port to the first stage queue (fig. 3 Input Port, box 110).

Regarding claim 10, the packet related data is a data packet (col. 7 lines 21- 27).

Regarding claim 14, means for determining from the packet-related data, which destination ports are to receive the packet related data in the first queue (fig. 3 box 120). ATM cells store routing information in the cell header.

Regarding claim 16, in the specific example given by Ramakrishnan (fig. 3), the inputs come from different ports. It would be obvious to one of average skill in the art that a process exists to determine which inputs go to which input buffer (fig. 3 box 110). In ATM, VCI/VPI information is stored in the cell header.

Regarding claim 20, as previously stated in claim 13, it would be obvious to one of average skill in the art that the controller (fig. 3 box 140) could be replaced with a switch fabric such as a crossbar matrix. This could be the case if the output-buffered switch (fig. 3) is part of a larger system and decision-making logic is needed to send the data to the correct location. In ATM, VCI/VPI information is stored in the cell header.

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Regarding claim 12, in addition to the limitations listed in claim 20, Ramakrishnan teaches simultaneously sending a copy of the data packet from the sending port to each of the determined destination ports (multicast, col. 7 line 66 - col. 8 line 13).

Regarding claims 11 and 19, in addition to the limitations listed in claim 12, Ramakrishnan teaches the switch fabric is a shared memory switch fabric (col. 6 lines 30 - 44).

4. Claims 4, 5, 7-9/17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakrishnan as applied to claim 1/13 above, and further in view of Marin (US 6,269,079).

Ramakrishnan is silent on how the cells should be arranged in each set of second queues (fig. 3 box 130).

Marin teaches that in an ATM environment queues may be subdivided based upon the priority of the incoming cells (QoS, fig. 8 box 52a, 82a, 82b, col. 1 lines 31 - 40).

Therefore it would have been obvious to one of ordinary skill in the art, having both Ramakrishnan and Marin before him/her and with the teachings [a] as shown by Ramakrishnan, a switching device with a multistage queuing scheme, and [b] as

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shown by Marin, in an ATM environment queues may be subdivided based upon the priority of the incoming cells, to be motivated to modify the system of Ramakrishnan by subdividing each first queue (fig. 3 box 110) into multiple queues as shown in fig. 3 box 130). Furthermore, control logic could be added to the system so that each cell could be placed in the queues based upon cell priority. The control logic could be performed in software. Cell priority in ATM cells is found in the cell header. This would improve the system by allowing for cells with the highest priority to be transported through the system with the shortest possible delay.

Allowable Subject Matter

5. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 6, nothing in the prior art teaches or fairly suggests the packet characteristic being network protocol

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type, in combination with the other limitations listed in the claim.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

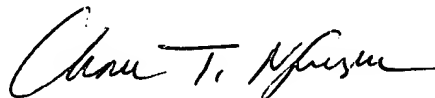
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

RA

Ronald Abelson
Examiner
Art Unit 2663

RA

July 10, 2002



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